No. 776,789. PATENTED DEC. 6, 1904.

F. M. LOCKE.

INSULATOR.

APPLICATION FILED NOV. 16, 1903.

NO MODEL.

Fig. 1.

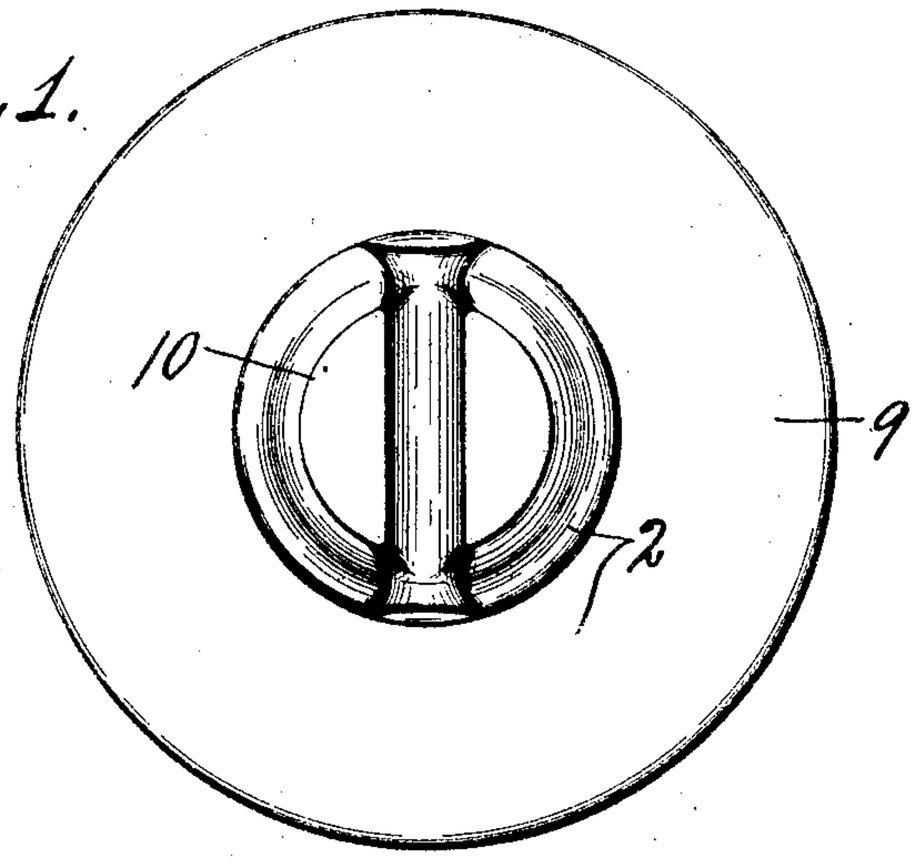


Fig. 2.

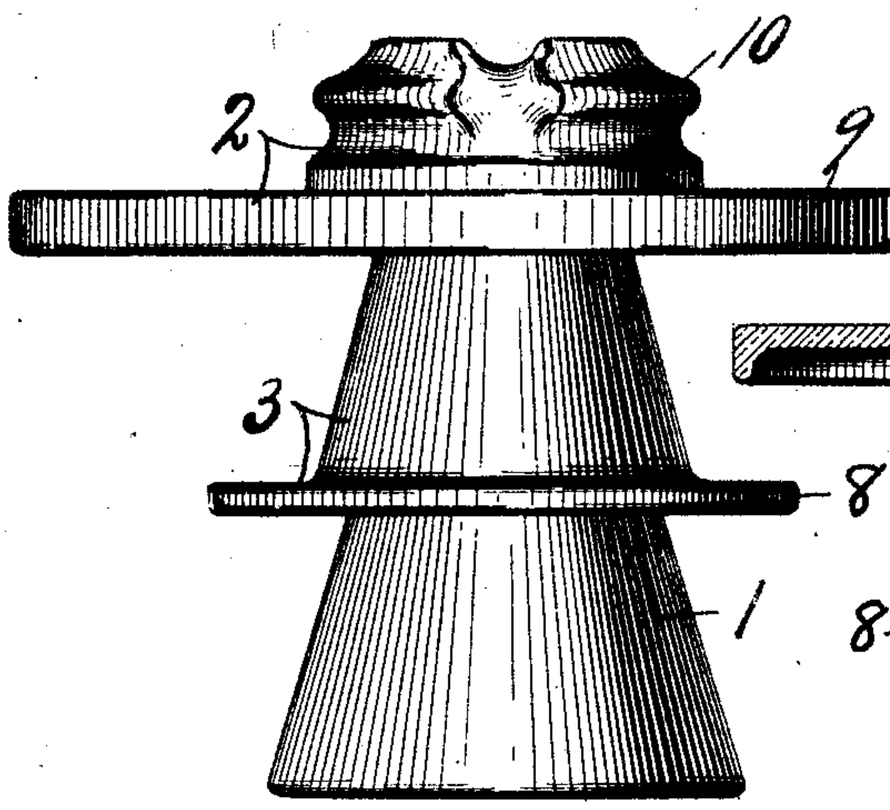
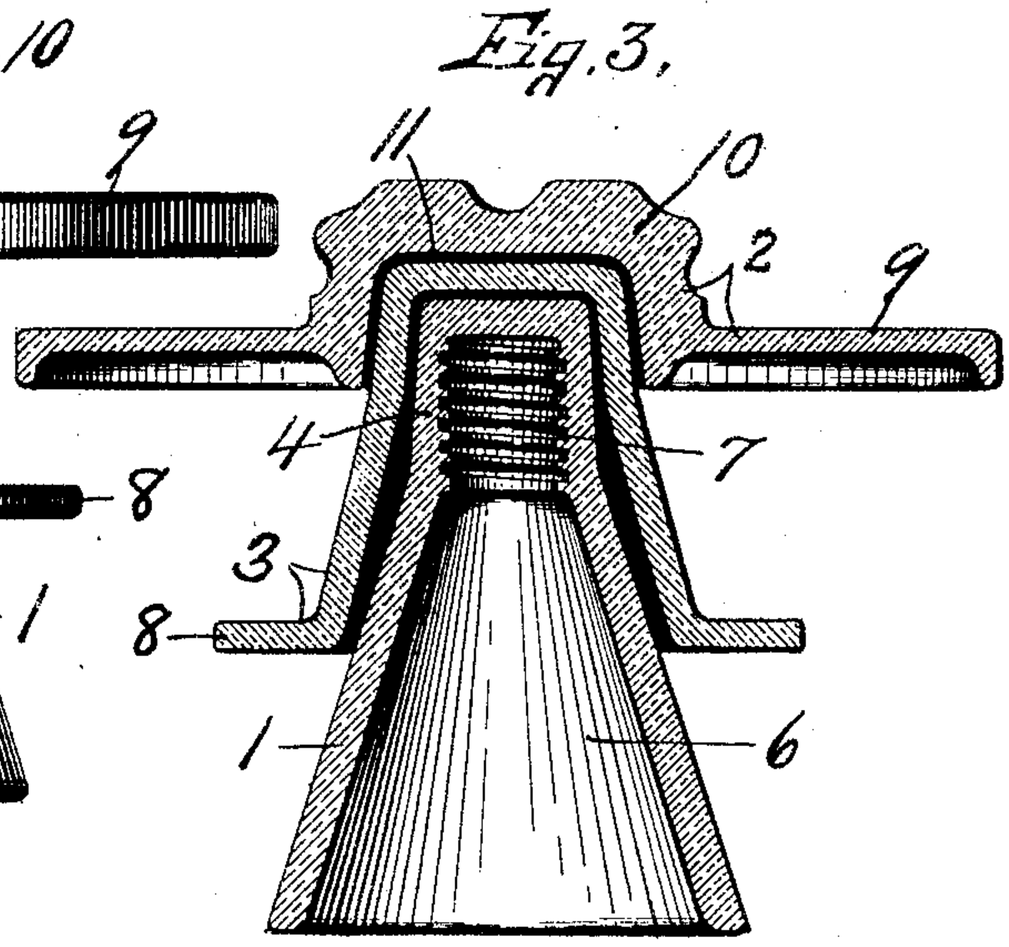


Fig. 3.



Witnesses:
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No. 776,789. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

FRED M. LOCKE, OF VICTOR, NEW YORK.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 776,789, dated December 6, 1904.

Application filed November 16, 1903. Serial No. 181,362. (No model.)

To all whom it may concern:

Be it known that I, FRED M. LOCKE, of Victor, in the county of Ontario, in the State of New York, have invented new and useful Improvements in Insulators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in insulators, and refers more particularly to porcelain, glass, or other earthenware bodies which are adapted to be supported on suitable pins or cross-arms for carrying the conductors of high-voltage electric currents. These insulators are usually built up or composed of inverted-cup-shape sections nested one within the other and cemented, fused, or otherwise secured together at the joints, the center section being generally provided with an internal threaded socket to receive the supporting-pin, which projects from the cross-arm, while the electric conductor is usually attached to the upper end of the upper section. These sections being comparatively thin are more compact and homogeneous and less liable to puncture by electric currents of high voltage than they could possibly be if made in a single piece, and the electrical resistance of the assembled sections is therefore materially increased. In building up these sections considerable attention is given to the proportions, such as the height and relative sizes and disposition of the skirts or flanges, according to the use and degree of voltage to which it is subjected, the controlling idea being to keep the head or top of the insulator as low as possible with reference to the base of the supporting-pin without liability of burning or charring the pin or cross-arm by the leakage of the electric current from the feed-wire. These sections, and particularly the upper one, are generally formed with downwardly-flaring skirts, and I have discovered after repeated high-voltage tests that the current leakage distributes itself more or less uniformly and downwardly over the flaring surfaces, especially when said surfaces are wet or moist, and then jumps from the lower edge of the skirt to the cross-arm or base of the supporting-pin, thereby burning or charring the latter and rendering the support for the insulator insecure. It therefore follows that, even though the skirt of the upper section is elevated to bring its lower edge a considerable distance above the base of the pin, if it has a pronounced taper or outward and downward flare the tendency of the current leakage is always downward over said surface to its lower edge, from which it invariably jumps to the cross-arm or base of the pin.

The object of my present invention is to arrest this leakage and to throw it inwardly toward the center of the upper end of the insulator, where the resistance is greatest, thus neutralizing the force of the escaping current to prevent the burning out of the pin or cross-arm and at the same time increasing the effective current strength in the main conductor. This is accomplished by providing the insulator with one or more substantially horizontal flanges, as seen in the drawings, in which—

Figures 1 and 2 are respectively a top plan and a side elevation, and Fig. 3 is a vertical sectional view, of my improved insulator.

Similar reference characters indicate corresponding parts in all the views.

As seen in the drawings, this insulator comprises inner, outer, and intermediate hollow sections 1, 2, and 3, of earthenware, such as porcelain, glass, or similar material. The inner and lower section 1 is formed with a cylindrical upper end 4 and a downwardly-flaring base portion having a central opening 6, which terminates at its upper end in a threaded socket 7 to receive a suitable supporting-pin. (Not shown.) The intermediate section 3 is somewhat bell shape and fits over and upon the upper end of the section 1, while its lower end extends downwardly to a plane substantially midway between the ends of the section 1 and is formed with an annular substantially horizontal flange 8. The upper and outer section 2 consists of a substantially flat horizontal disk 9, having a central boss or raised portion 10 and a central socket 11, opening from its lower face into the boss 10 to receive the upper end of the middle section 3, the boss 10 being

formed with suitable grooves to receive the main conductor and its tie. These sections 1, 2, and 3 are nested one into the other and are fused, cemented, or otherwise secured together at the joints to form practically one body or complete insulator, the disk 9 being of greater diameter than the flange 8.

Although I have described the flange 8 and disk 9 as substantially horizontal, it is more essential that their upper faces be disposed in horizontal planes, while their lower faces may be flat, as seen in the flange 8, or dished upwardly from their outer edges, as seen in the disk 9.

It is now apparent that by making the upper section substantially flat its outer and lower edge is elevated a safe distance from the cross-arm and base of the supporting-pin without increasing the general height of the insulator, and the horizontal upper face of the disk instead of facilitating the descent of the current tends to hold or retard its progress and to throw it back upon the center of the upper part of the insulator, thereby neutralizing the force of the current and conserving the electromotive force in the main conductor, while the upper surface of the flange 8 serves the same purpose in preventing the escape to the pin of any current which may possibly pass around the outer section 2.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. Two inverted-cup-shape insulator-sections nested together and formed with annular flanges in planes one above the other and at substantially right angles to their axes.

2. An insulator comprising two cup-shape sections nested together and having horizontal flanges in planes one above the other and of unequal diameters.

3. An insulator comprising a bell-shape section having an annular substantially horizontal flange, and a second section nested on the upper end of the former section and also formed with a horizontal flange projecting from its lower edge.

4. In an insulator, two sections nested and secured together and formed with substantially horizontal surfaces in planes one above the other.

5. In an insulator, the combination of a bell-shape section having a horizontal flange projecting from its lower edge, and a flat horizontal disk fitted upon and secured to the upper end of said section.

6. In an insulator, the combination of a bell-shape section having a horizontal flange projecting from its lower edge, and a flat horizontal disk fitted upon and secured to the upper end of said section and a hollow central section fitted in the former section to receive a supporting-pin.

In witness whereof I have hereunto set my hand this 7th day of November, 1903.

FRED M. LOCKE.

Witnesses:
W. A. HIGINBOTHAM,
FRED J. LOCKE.